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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/799,416	05/01/2007	Craig R. Chinchilla	0957007 (40283-10500)	5705

21788 7590 04/27/2017
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EXAMINER

FRITCHMAN, REBECCA M

ART UNIT	PAPER NUMBER
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1797

NOTIFICATION DATE	DELIVERY MODE
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04/27/2017

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CRAIG R. CHINCHILLA

Appeal 2015-005233
Application 11/799,416
Technology Center 1700

Before TERRY J. OWENS, PETER F. KRATZ, and CHRISTOPHER C. KENNEDY, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 7–19 and 22–25. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM.

Appellant's claimed invention is directed to a method for determining a nitrate concentration of a sample using a colorimetric autoanalyzer.

Appellant acknowledges that “[c]olorimetric autoanalyzers are found within the art, for example, EasyChem Pro manufactured by Systea (Spec. ¶ 17).

Claim 7 is illustrative and reproduced below:

7. An automated method of reliably and accurately determining nitrate concentration of a sample using an automated colorimetric autoanalyzer comprising:

- providing a colorimetric autoanalyzer;
- adding at least one sample containing nitrate to a sample container in the autoanalyzer;
- obtaining a reagent comprising effective amounts of a mixture of hydrochloric acid, vanadium trichloride, sulfanilamide and N-1-naphthylethylenediamine for determining the nitrate concentration of the sample;
- adding the reagent to a reagent container in the autoanalyzer for nitrate analysis;
- the autoanalyzer mixing the sample and a quantity of the reagent from the reagent container in the autoanalyzer;
- thereafter, allowing the sample to react in the autoanalyzer with the reagent sufficiently to permit determination of the amount of nitrate in the sample; and
- the autoanalyzer colorimetrically analyzing the sample to determine the amount of nitrate in the sample.

The Examiner relies on the following prior art references as evidence in rejecting the appealed claims:

Devlin, Sr. US 6,991,764 B2 Jan. 31, 2006

Miranda, "A Rapid, Simple Spectrometric Method for Simultaneous Detection of Nitrate and Nitrite."

The Examiner maintains the following grounds of rejection:

Claims 7–19 and 22–25 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Miranda in view of Devlin.

Appellant's arguments and evidence expose no reversible error in the Examiner's obviousness rejection. We affirm the stated rejection substantially for the reasons set forth by the Examiner in the Final Office Action and in the Answer. We offer the following for emphasis.

Appellant argues the rejected claims together as a group and presents additional argument for dependent claims 9, 24, and 25 (App. Br. 3–11). We select claim 7 as the representative claim for the arguments presented with respect to all of the rejected claims, and we consider dependent claims 9, 24, and 25 separately to the extent the later claims are separately argued.

Appellant does not dispute the Examiner’s finding that Miranda teaches a spectrophotometric method of nitrate content analysis using vanadium trichloride together with Griess reagent (sulfanilamide and N-1-naphthylethylenediamine) and hydrochloric acid (Final Act. 2–3; Ans. 3; Miranda, p. 64, col. 2, pp. 65–66). Concerning representative claim 7, Appellant argues that (1) Miranda teaches away from using an autoanalyzer and premixing the four reagent components as required by claim 7 and (2) the Examiner’s proposed modification of the sequential order of addition of the reagents of Miranda is not accompanied by a reasonable expectation of success (App. Br. 3–10; Reply Br. 1–3). Appellant cites to a Declaration under 37 C.F.R. § 1.132 of Craig R. Chinchilla, the named inventor, in support.

In particular, Appellant contends that Miranda’s teachings with respect to supplying Griess reagents to the sample “rapidly following” vanadium chloride addition to the sample and providing for the premixing of the Griess solutions prior to addition of the mixed solutions to the sample and vanadium chloride would have led one of ordinary skill in the art away from premixing all four reagent components (Ans. 5–6; Miranda, pp. 64–65; Declaration ¶ 8). In this regard, Appellant contends that (1) premixing could introduce side reactions that would interfere with the analysis, (2) Miranda provides no teaching of a common solvent for all the reagents, (3) Miranda

indicates that vanadium may reduce other compounds not just nitrate, and (4) Miranda indicates a possibility for artifact appearance if the sample is incubated for a time period greater than 30 minutes (App. Br. 6–7; Miranda pp. 68-69; Declaration ¶¶7–11).

We are not persuaded by Appellant’s arguments and Declaration contentions. Miranda teaches effecting nitrate reduction and detection via the disclosed vanadium chloride/Griess reagents assay by adding both the Griess reagents and the vanadium chloride to the sample for analysis (Miranda p. 64–66). Hence, one of ordinary skill in the art would have been taught or led to form the same mixture of sample and reagents as required by Appellant’s claim 7 regardless of the order of ingredient addition, whether the Griess reagent solutions, including the acid, follows the vanadium chloride, which is added first, or whether the ingredients are added substantially simultaneously to the sample to be analyzed since the ultimate reason for adding the reagents involved is to form a mixture of all with the sample for the analysis.

Appellant has not shown where Miranda teaches one of ordinary skill in the art that sufficient interfering compounds would be expected to form with a change in the order of addition as proposed by the Examiner such that the proposed modification would be discouraged as being unworkable. Nor has Appellant persuasively furnished other substantiating evidence to support the opinions expressed in the Declaration concerning the formation of significant interfering compound being expected by an ordinarily skilled artisan with the proposed modification such that this expectation would discourage modifying the order of addition to that required by Appellant’s claim 7. Moreover, Appellant has not demonstrated why the possibility of

artifact formation with an incubation time period longer than 30 minutes, as discussed by Miranda (p. 68), would have been significantly affected by the reagent order of addition and would have discouraged an ordinarily skilled artisan to avoid pursuing a different order of addition of the reagents as an option, such as required by Appellant's claim 7.

In this regard and contrary to Appellant's argument and Declaration contentions, the claimed order of addition involving the formation of a pre-mixture of the four reagents has not been established as being discouraged and taught away from by Miranda (*see* Final Act. 3, 6; Ans. 7–8). *See In re Burhans*, 154 F.2d 690, 692 (CCPA 1946); *see also In re Gibson*, 39 F.2d 975, 976–77 (CCPA 1930) (selection of any order of mixing ingredients is *prima facie* obvious).

Furthermore Appellant's contentions do not indicate that the Examiner's proposed modification of Miranda based on reordering the steps would have lacked a reasonable expectation of success.

As for the use of an autoanalyzer, the Examiner relies on the combined teachings of Miranda and Devlin to suggest this claimed feature (Ans. 4). Appellant's argument that Miranda does not disclose an automated method does not address the combined prior art basis of the Examiner's rejection concerning this feature and appears to be undercut by Appellant's acknowledgement as to the well-known nature of such colorimetric autoanalyzers (App. Br. 5; Spec. ¶ 17).

Accordingly, we concur with the Examiner that Appellant's arguments and supporting Declaration evidence are insufficient to establish reversible error in the Examiner's obviousness rejection of representative claim 7.

As for dependent claims 9, 24, and 25, Appellant's argument and Declaration contentions fall short of establishing that a method using a reagent composition in accordance with any of the latter claims is accompanied by surprising/unexpected shelf-life for the reagent based on the test report in paragraph 12 of the Declaration. In this regard, Miranda disclosed a short shelf-life for a saturated solution of vanadium trichloride and a shelf-life of several months for Griess solutions ((p. 64). Appellant's disclosed 90 day shelf-life for a dilute solution of Griess reagents and vanadium trichloride of a specified composition has not been reasonably established as being unexpected to one of ordinary skill in the art in light of the above-noted disclosures of Miranda and given the lack of any reported shelf-life testing with representative comparative samples of prior art reagent compositions in accordance with Appellant's shelf-life determining method as sketched in paragraph 12 of the Declaration. In addition and regarding claims 24 and 25, Appellant does not articulate why the shelf-life reported for the composition set forth in paragraph 12 of the Declaration is relevant or has a nexus to the expected shelf life for the compositions of claim 24 and/or claim 25.

It follows that we shall sustain the Examiner's obviousness rejection as to all of the appealed claims.

ORDER

In view of the forgoing, the decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED